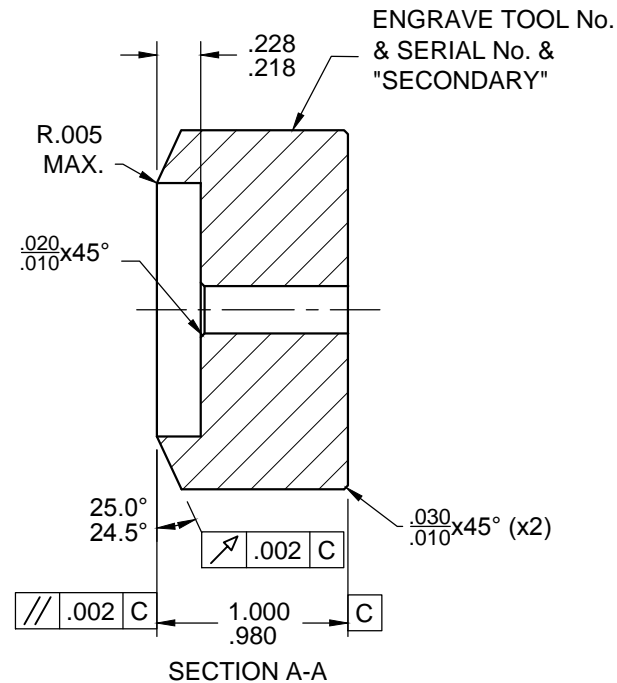
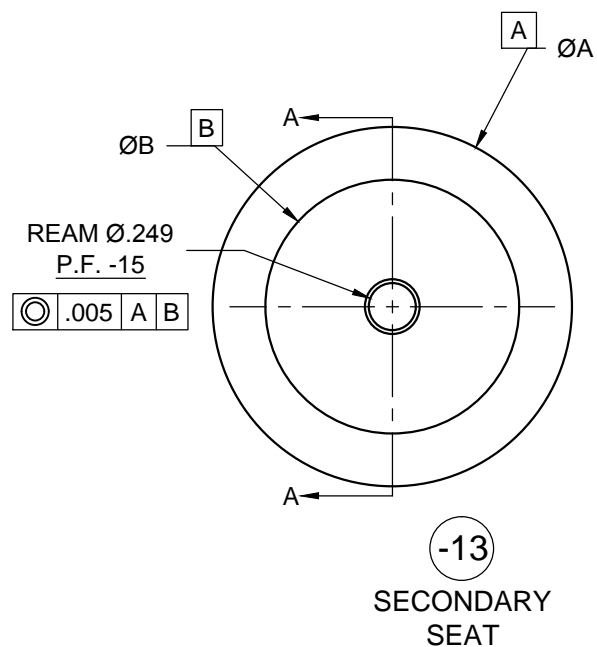


**NOTES**  
1. BREAK ALL SHARP CORNERS (.015/.03).

**UNDER REVIEW**  
URF 19-1114 19.10.30 (VM)

TOOL #	ØA	PIN TYPE	MATERIAL
KST-BACB10FE	$\begin{matrix} +.000 \\ -.002 \end{matrix}$		
KSTFE05	.310	III	1018 RND. BAR Ø5/8 x 5/8

<b>TITLE</b> KSTFE SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACB10FE BEARINGS			
<b>DWG NO.</b> TOOL# (see chart)-15			<b>REV</b> -
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS .XXX $\pm$ .005 .XX $\pm$ .01 X $\pm$ .1		<b>DRAWN BY:</b> PERRITT <b>APPROVED</b> HEAT TREAT FINISH SPEC <b>BLACK OXIDE</b> USED ON BEARING <b>SEE Pg. 1</b>	
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING		<b>SCALE</b> NTS <b>DATE</b> 2-20-09 <b>SHEET</b> 9 of 9	



#### NOTES

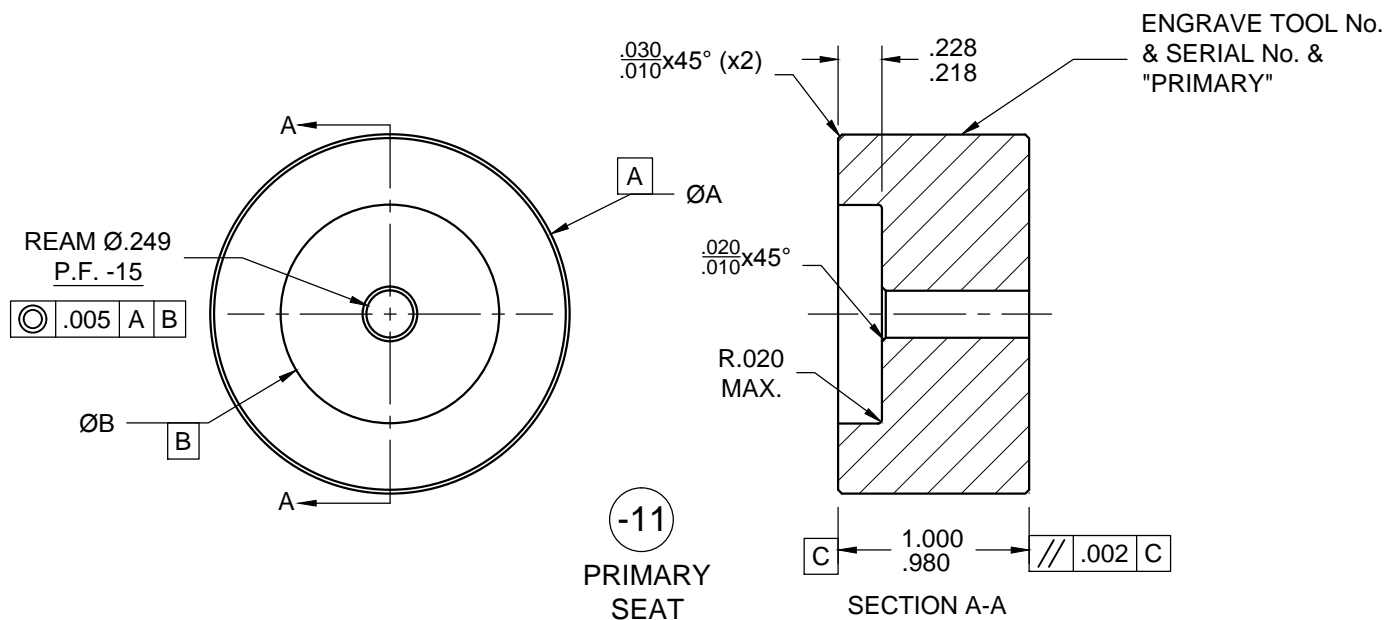
1. BREAK ALL SHARP CORNERS (.015/.03).

**UNDER REVIEW**

URF 19-1114 19.10.30 (VM)

TOOL #	ØA	ØB	MATERIAL
KST-BACB10FE	+ .000 - .030	+ .000 - .005	
KSTFE05	1.062	.627	4140 Q&T RND. BAR Ø1-1/8 x 1-1/8

<b>RED BARN MACHINE</b>			
TITLE KSTFE SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACB10FE BEARINGS			
DWG NO. TOOL# (see chart)-13			REV -
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DRAWN BY: PERRITT	
TOLERANCES ON:		APPROVED	
DECIMALS		HEAT TREAT	
.XXX ± .005		FINISH SPEC	
.XX ± .01		BLACK OXIDE	
X ± .1		USED ON BEARING	
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING		SEE Pg. 1	
SCALE NTS	DATE 2-20-09	SHEET 8 of 9	



**UNDER REVIEW**

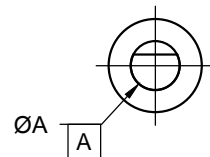
# NOTES

1. BREAK ALL SHARP CORNERS (.015/.03).

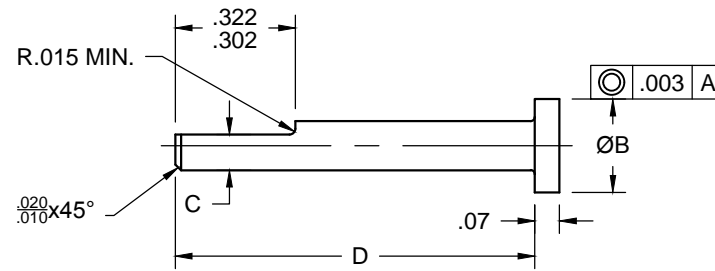
URF 19-1114 19.10.30 (VM)

TOOL #	$\varnothing A$	$\varnothing B$	MATERIAL
KST-BACB10FE	$\begin{smallmatrix} +.000 \\ -.030 \end{smallmatrix}$	$\begin{smallmatrix} +.000 \\ -.005 \end{smallmatrix}$	
KSTFE05	1.062	.591	4140 Q&T RND. BAR $\varnothing 1-1/8 \times 1-1/8$

<b>RED BARN MACHINE</b>	
TITLE KSTFE SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACB10FE BEARINGS	
DWG NO. TOOL# (see chart)-11	REV -
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
TOLERANCES ON:	
DECIMALS	FRACTIONS $\pm 1/32$
.XXX $\pm .005$	ANGLES $\pm 5^\circ$
.XX $\pm .01$	
X $\pm .1$	
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE NTS	DATE 2-20-09
SHEET 7 of 9	
DRAWN BY: PERRITT	
APPROVED	
HEAT TREAT	
FINISH SPEC BLACK OXIDE	
USED ON BEARING	
SEE Pg. 1	



**-9**  
PIN



**UNDER REVIEW**

URF 19-1114 19.10.30 (VM)

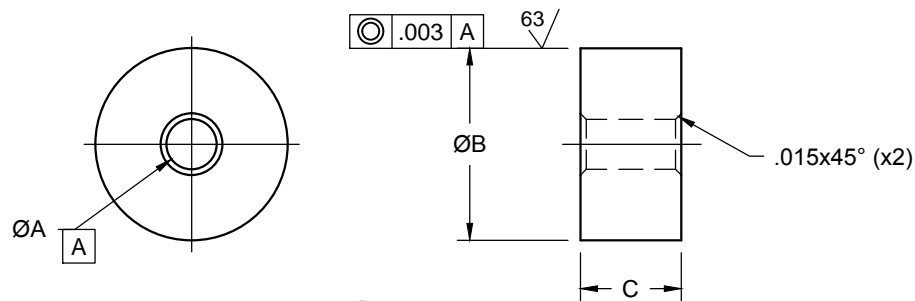
TOOL #	ØA	ØB	C	D	MATERIAL
KST-BACB10FE	+ .000 - .001	+ .005 - .002	+ .000 - .020	+ .020 - .020	
KSTFE05	.129	.188	.104	.906	MCMaster-CARR PN: 98378A909

#### NOTES

- BREAK ALL SHARP CORNERS (.015/.03).

<b>RED BARN MACHINE</b>	
TITLE KSTFE SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACB10FE BEARINGS	
DWG NO. TOOL# (see chart)-9	REV -
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
TOLERANCES ON: DECIMALS .XXX ± .005 FRACTIONS ± 1/32 .XX ± .01 ANGLES ± .5° X ± .1	
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE NTS	DATE 2-20-09
SHEET 6 of 9	

DRAWN BY: PERRITT
APPROVED
HEAT TREAT
FINISH SPEC BLACK OXIDE
USED ON BEARING
SEE Pg. 1



-7  
GUIDE

**UNDER REVIEW**

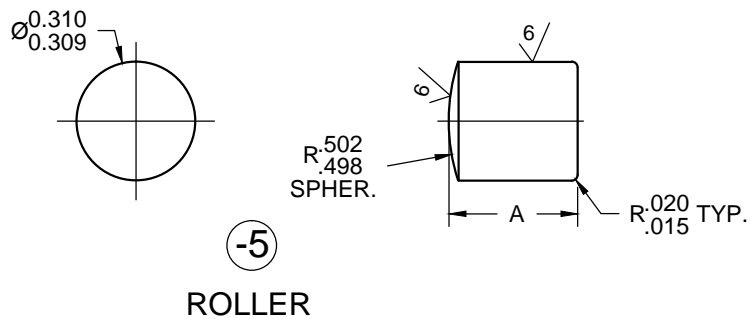
URF 19-1114 19.10.30 (VM)

TOOL #	ØA	ØB	C	MATERIAL
KST-BACB10FE	+001 -001	+000 -002	+000 -010	
KSTFE05	.131	.310	.220	BRONZE RND. BAR Ø3/8 x 3/8

#### NOTES

1. BREAK ALL SHARP CORNERS (.015/.03).

<b>RED BARN MACHINE</b>			
<b>TITLE</b> KSTFE SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACB10FE BEARINGS			
<b>DWG NO.</b> TOOL# (see chart)-7			<b>REV</b> —
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS .XXX ± .005 .XX ± .01 X ± .1		DRAWN BY: <b>PERRITT</b> APPROVED HEAT TREAT FINISH SPEC USED ON BEARING SEE Pg. 1	
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING		SCALE <b>NTS</b> DATE <b>2-20-09</b> SHEET <b>5 of 9</b>	

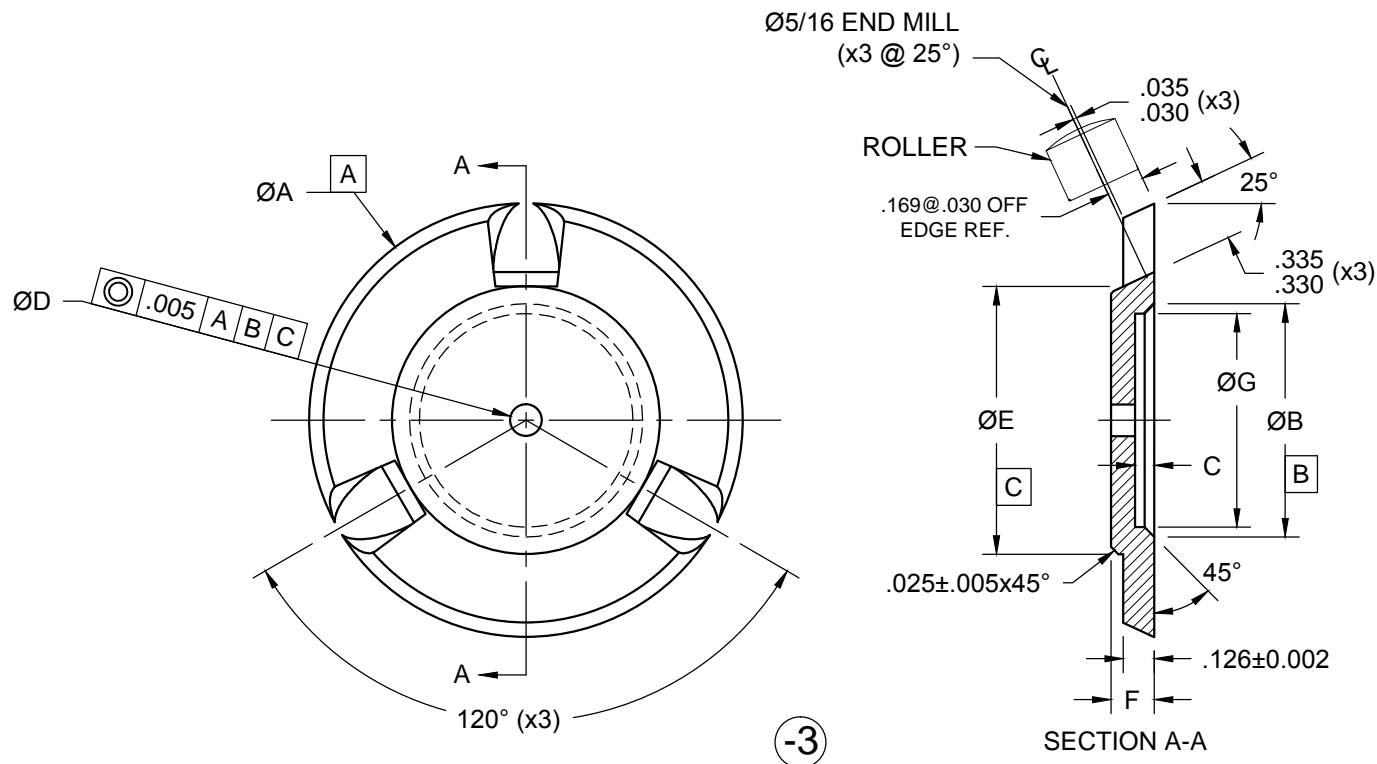


**UNDER REVIEW**

URF 19-1114 19.10.30 (VM)

TOOL #	A	MATERIAL
KST-BACB10FE	+ .001 - .001	
KSTFE05	.335	.310 MINUS GAUGE PIN MSC#89031009

<b>RED BARN MACHINE</b>			
<b>TITLE</b> KSTFE SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACB10FE BEARINGS			
<b>DWG NO.</b> TOOL# (see chart)-5			<b>REV</b> —
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS .XXX ± .005      FRACTIONS ± 1/32 .XX ± .01      ANGLES ± .5° X ± .1		<b>DRAWN BY:</b> PERRITT <b>APPROVED</b> HEAT TREAT FINISH SPEC	
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING		USED ON BEARING <b>SEE Pg. 1</b>	
<b>SCALE</b> NTS	<b>DATE</b> 2-20-09	<b>SHEET</b> 4 of 9	



RETAINER

UNDER REVIEW

URF 19-1114 19.10.30 (VM)

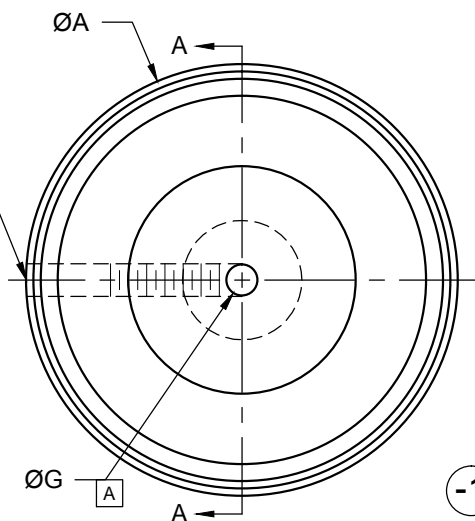
NOTES

1. BREAK ALL SHARP CORNERS (.015/.03).

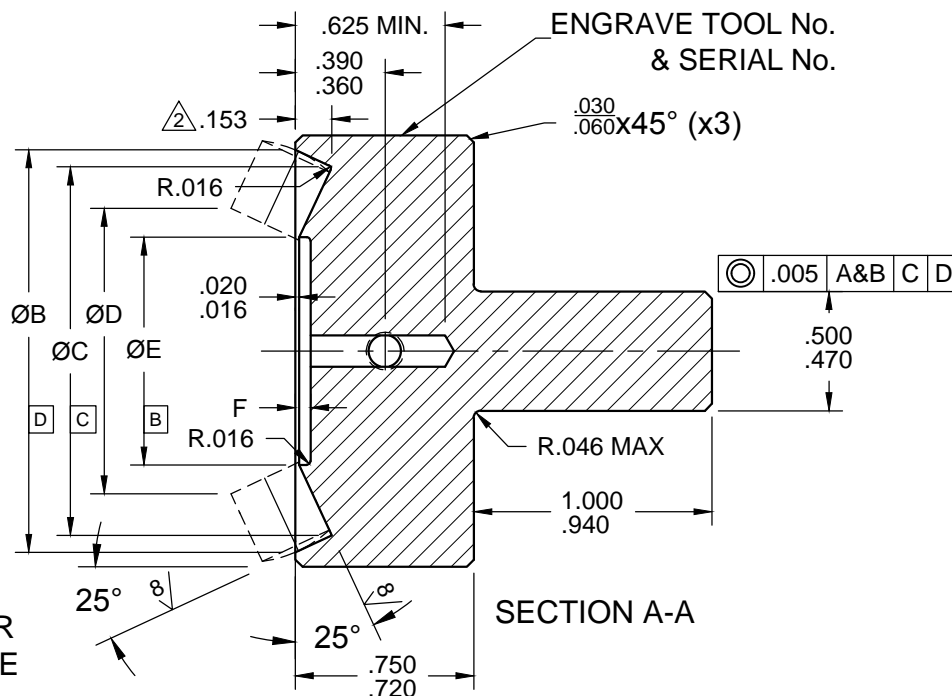
TOOL #	ØA	ØB	C	ØD	ØE	F	G	P.D. REF.	MATERIAL
KST-BACB10FE	+002 -002	+010 -005	+020 -000	+004 -001	+000 -015	+010 -010	+010 -005		
KSTFE05	1.212	-	-	.136	-	-	-	.627	BRONZE RND. BAR Ø1-1/4 x 5/16

<b>RED BARN MACHINE</b>	
TITLE KSTFE SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACBIOFE BEARINGS	
DWG NO. TOOL# (see chart)-3	REV -
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
TOLERANCES ON:	DRAWN BY: PERRITT
DECIMALS:	APPROVED
.XXX ± .005	HEAT TREAT
.XX ± .01	FINISH
X ± .1	SPEC
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
USED ON BEARING	
SEE Pg. 1	
SCALE NTS	DATE 2-20-09 SHEET 3 of 9

#8-32 UNC THRD  
LENGTH 3/8 MIN.  
C-BORE Ø.187  
DEPTH OPTIONAL



(-1)  
ROLLER  
FIXTURE



#### NOTES

1. BREAK ALL SHARP CORNERS (.015/.03).
2. DIMENSION TO BOTTOM OF R.016=.153;  
DIMENSION TO SHARP CORNER=.158.
3. -1 BEARING RACE SURFACES MUST HAVE  
SMOOTH APPEARANCE, FREE FROM  
MACHINING MARKS AND GROOVES.
4. DO FIRST ARTICLE INSPECTION  
BEFORE HEAT TREATING.

**UNDER REVIEW**

URF 19-1114 19.10.30 (VM)

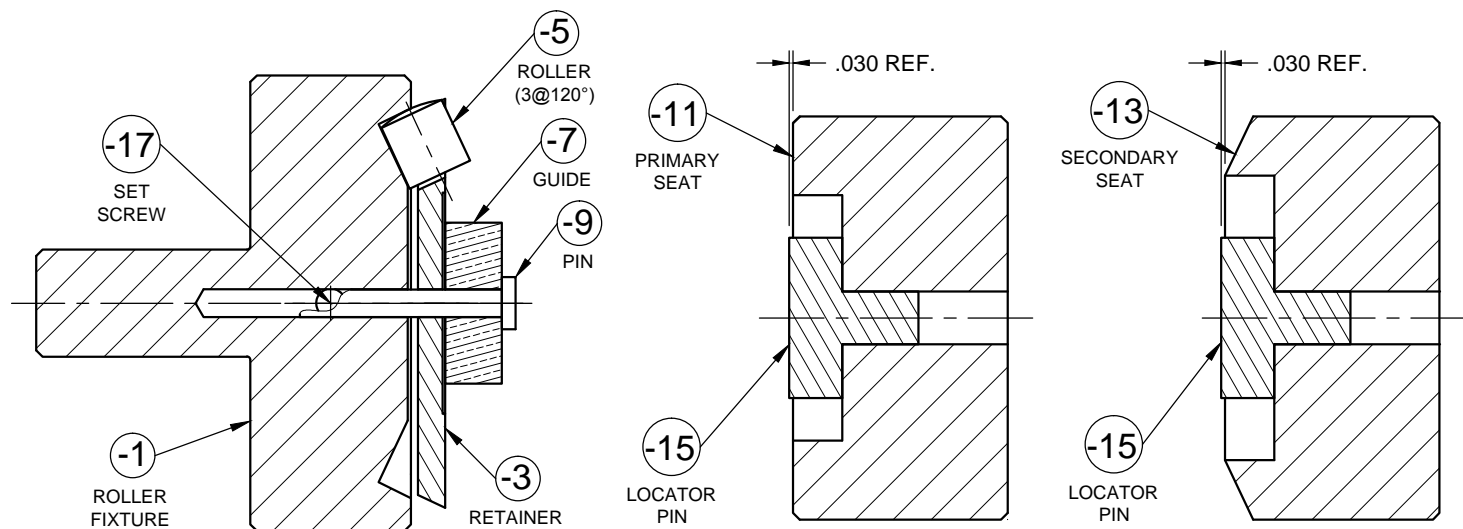
TOOL #	ØA	ØB	ØC	ØD	ØE	F	ØG	MATERIAL
KST-BACB10FE	+0.00 -.030	+0.08 -.000	+0.08 -.000	P.D. REF.	+0.08 -.000	+0.030 -.000	+0.00 -.001	
KSTFE05	1.375	1.120	.973	.627	.365	-	.131	0-1 DRILL ROD Ø1-3/8 x 1-7/8

<b>RED BARN MACHINE</b>	
TITLE KSTFE SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACB10FE BEARINGS	
DWG NO. TOOL# (see chart)-1	REV -
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
TOLERANCES ON: DECIMALS .XXX ± .005 FRACTIONS ± 1/32 .XX ± .01 ANGLES ± 5° X ± .1	
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE NTS	DATE 2-20-09
SHEET 2 of 9	
DRAWN BY: PERRITT APPROVED HEAT TREAT RC 55-60 FINISH BLACK OXIDE USED ON BEARING SEE Pg. 1	



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REVISIONS								
REV	DESCRIPTION				DATE	INITIAL	APPROVED	
—	—					—	—	—



**UNDER REVIEW**  
URF 19-1114 19.10.30 (VM)

### DRILL PRESS TRI-ROLLER SWAGING TOOL ASSEMBLY

#### NOTES

1. -5 ROLLERS MUST TURN FREELY IN -3 RETAINER POCKETS.
2. -5 ROLLERS & -3 RETAINER MUST TURN FREELY WHEN TOOL IS COMPLETELY ASSEMBLED.
3. FLAT END OF ROLLERS MUST FACE TOWARDS THE CENTER OF THE TOOL WHEN ASSEMBLED.

BEARINGS & TOOLS COVERED	
BEARING #	TOOL #
BACB10FE05	KSTFE05

ASSY QTY	B/O	PART #	UNIT QTY	DESCRIPTION	B/O INFORMATION OR SPECIFICATIONS	Pg.
		-1	1	ROLLER FIXTURE	SEE CHART	2
		-3	1	RETAINER	SEE CHART	3
		-5	3	ROLLER	SEE CHART	4
		-7	1	GUIDE	SEE CHART	5
		-9	1	PIN	SEE CHART	6
		-11	1	PRIMARY SEAT	SEE CHART	7
		-13	1	SECONDARY SEAT	SEE CHART	8
		-15	2	LOCATING PIN	SEE CHART	9
	B/O	-17	1	SOCKET HEAD SET SCREW	#8-32 x 1/4	N/S

<b>RED BARN MACHINE</b>	
TITLE KSTFE SERIES DP TRI-ROLLER SWAGING TOOLS FOR BACB10FE BEARINGS	
DWG NO. SEE CHART ABOVE FOR TOOL No.	REV -
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
TOLERANCES ON:	
DECIMALS .XXX ± .005	FRACTIONS ± 1/32
.XX ± .01	ANGLES ± .5°
.X ± .1	
UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE NTS	DATE 2-20-09
SHEET 1 of 9	

DRAWN BY: PERRITT	HEAT TREAT LISTED PER ITEM
APPROVED	FINISH SPEC LISTED PER ITEM
USED ON BEARING	
SEE ABOVE	




NOT APPROVED FOR PRODUCTION

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

UNDER REVIEW  
URF 19-1114 19.10.30 (VM)

	PART #	QTY	DESCRIPTION
	-1	1	--

DRAWN BY: PERRITT	 RED BARN MACHINE		
CHECKED			
HEAT TREAT FINISH SPEC			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS .XXX ± .005 FRACTIONS ± 1/32 .XX ± .01 ANGLES ± .5° .X ± .1			
USED ON MODEL	TITLE	DWG NO.	REV.
?	TITLE	PART #	
	SCALE NTS	DATE 1-28-06	SHEET 1 of 1
	UNLESS OTHERWISE SPECIFIED 1. BREAK ALL SHARP EDGES .015 x 45° PR .015 R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING		